

In the Claims:

Please cancel claims 1-23 and add the following claims:

- 53. A method of detecting the presence of antibodies to *M. bovis* and *M. tuberculosis* in a biological sample, said method comprising:
combining said sample with a protein having the amino acid sequence of SEQ ID NO:2 or an antigenic determinant thereof; and
detecting antibodies bound to said protein.
54. The method of Claim 53, wherein said protein is immobilized on a solid support.
55. The method of Claim 54, wherein said solid support is nitrocellulose.
56. The method of Claim 53, wherein said sample comprises one or more of sputum, blood, and serum.
57. The method of Claim 53, wherein said detecting is by a qualitative detection system.
58. The method of Claim 57, wherein said qualitative detection system is a horseradish peroxidase-protein A detection system.
59. The method of Claim 53, wherein said detecting is by a quantitative detection system.
60. The method of Claim 59, wherein said quantitative detection system is a radioimmunoassay.
61. The method of Claim 53, further comprising:
combining a control biological sample with said protein; and
comparing the detection of said binding to the binding of antibodies in the control sample with said protein.

62. A method of detecting the presence of *M. bovis* and *M. tuberculosis* in a biological sample, said method comprising;
- a) lysing the cells in said sample;
 - b) combining said lysate with antibodies to a protein having the amino acid sequence of SEQ ID NO:2 or an antigenic determinant thereof; and
 - c) detecting said antibodies bound to protein in said lysate.
63. The method of Claim 62, wherein said lysate is immobilized on a solid support.
64. The method of Claim 63, wherein said solid support is nitrocellulose.
65. The method of Claim 62, wherein said detecting is by a qualitative detection system.
66. The method of Claim 65, wherein said qualitative detection system is a horseradish peroxidase-protein A detection system.
67. The method of Claim 62, wherein said detecting is by a quantitative detection system.
68. The method of Claim 67, wherein said quantitative detection system is a radioimmunoassay.
69. The method of Claim 62, further comprising:
culturing a diagnostic sample to produce colonies of bacteria present therein, whereby said culture represents said biological sample.
70. A method of detecting the presence of antibodies to a virulent Mycobacterium in a biological sample, said method comprising:
combining said sample with a purified protein of a mycobacterium other than *M. bovis* BCG, wherein said protein is a homolog of the protein of SEQ ID NO:2; is an immunogenic membrane-associated protein of said mycobacterium; and is encoded by DNA which is capable of hybridizing with a DNA probe having the complete sequence represented in SEQ